

Project Title: Rehabilitation of CTDOT Bridge No. 03514 & NYSDOT Bridge No. 1052991, supporting Interstate 684 over Byram River

CTDOT Bridge No. 03514 & NYSDOT Bridge No. 1052991

The existing bridges are single-span structures consisting of prestressed concrete box beams supported by reinforced concrete abutments. Reinforced concrete slabs exist within the full width of the left and right shoulders with a full-depth bituminous patch in the travel lanes. Connecticut Department of Transportation (CTDOT) Bridge No. 03514 supports Interstate 684 Northbound (I-684 NB) and New York State Department of Transportation (NYSDOT) Bridge No. 1052991 supports I-684 SB over Byram River in the towns of Greenwich and North Castle, respectively. The structures are located approximately 2 miles south of the I-684 and New York State Route 22 interchange (I-684 northbound mile point 1.4).

The existing I-684 roadways supported by both bridges each consist of three 12-foot travel lanes, a 6-foot left shoulder, and a 10-foot right shoulder. Based on the 2019 CTDOT Traffic log, the estimated Average Daily Traffic on I-684 is 70,100 vehicles per day.

The purpose and need for the project is to address the structural deficiencies of the bridges. The existing structures are in poor condition and structurally deficient due to the deteriorated post-tensioning strands which have caused the box beams to act independently of each other, “piano-keying”, which has caused the decks wearing surfaces to deteriorate.

The proposed rehabilitation for both bridges involves reconstructing the backwalls and approach slabs, replacing the existing superstructure with prefabricated bridge units (PBUs), and installing a new waterproofing membrane and bituminous wearing surface. I-684 will be milled and paved at the bridge and approaches. The existing roadway geometry over the bridges will be maintained.

To perform construction and minimize traffic impacts, the superstructure replacements will occur during weekend bridge closures. NYSDOT Bridge No. 1052991 will be constructed first due to the poor condition of the bridge rail followed by CTDOT Bridge No. 03514. Temporary crossovers onto each bridge will be constructed in the median allowing two lanes of both I-684 NB and SB to remain open during construction. The three existing traffic lanes of I-684 NB and SB will be reduced to two lanes prior to shifting the traffic temporarily. Once all crossover traffic is clear of the work zone, both the northbound and southbound lanes will be redirected to their existing travel configuration. This will allow for complete access to the bridges to perform the superstructure replacements.

This project is anticipated to go into construction in Spring 2024 and will be completed in one construction season.